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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,302	01/04/2002	Thierry Pollet M. Pollet	Q67870	1960
7590 05/09/2005				
SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, NW Washington, DC 20037-3213			EXAMINER TRAN, KHANH C	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/035,302	Applicant(s) POLLET ET AL.	
	Examiner Khanh Tran	Art Unit 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5 is/are rejected.
- 7) ☒ Claim(s) 2-4 and 6-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

2. Claim 1 objected to because of the following informalities: "α" in equation (3) needs to be defined in the application claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 provides for the use of "timing error of a received digital multicarrier signal", but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 5 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 5 rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art in view of Tore U.S. Patent 6,310,926 B1.

Regarding claims 1 and 5, on pages 1-2 of the original disclosure, admitted prior art discloses Mueller timing error estimation in single carrier transmission synchronizers. Admitted prior art teaches the filtered version of timing error estimate, e , on the receiving side has a value represented by equation (1). Admitted prior art further teaches that equation (1) can be applied to a multicarrier transmission system, but e must be multiplied with " α " as defined on page 2 of the original disclosure.

The equation (1) is used for estimating a timing error, e , for a single carrier. In view of that, admitted prior art equation (1) when used in a multicarrier transmission system (" αe ") is equivalent to the claimed equation (3). Hence, on the receiving side of admitted prior art, the receiver estimates the timing error of a single carrier.

Admitted prior art does not teach a means for correcting the phase of a sampling clock in view of the estimated timing error as claimed in the application claim.

Tore invention is directed to a multicarrier system wherein a phase of a sample frequency is adjusted at the receiver side. Figure 7 illustrates an embodiment of a receiver in a multicarrier system using a data directed phase error estimator 21 for readjusting the phase of the numerically-controlled oscillator 15 outputting the receiver same rate to an analog-digital-conversion means 8; see column 9, lines 1-6. Admitted prior art and Tore teachings are in the same field of endeavor. As discussed in column 1, lines 40-45 of Tore invention, the recovery of the sample rate with a correct phase and the recovery of the symbol rate and its start position from the received analog multicarrier signal at the receiver must be very accurate to not cause a wrong decoding of the data. In view of the foregoing discussion, it would have been obvious for one of ordinary skill in the art at the time of the invention that admitted prior art teachings can be modified to employ the estimated timing error to correct the sampling clock as taught in Tore invention. The motivation is obvious that correct sampling clock prevents from wrongly decoding data.

Allowable Subject Matter

5. Claims 2-4 and 6-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Peeters et al. U.S. Patent 6,628,738 B1 discloses "Method Of Arrangement To Determine A Clock Timing Error In A Multi-Carrier Transmission System, And A Related Synchronization Units".

Kim et al. U.S. Patent 5,991,347 discloses "Symbol Timing Recovery Circuit For A Base Band Communication System Using A Plurality Of Channels".

Bombay U.S. Patent 6,778,622 B2 discloses "Estimating Timing Error In Samples Of A Discrete Multitone Modulated Signal".

Lashkarian U.S. Patent 6,678,339 B1 discloses "Globally Optimum Maximum Likelihood Estimation Of Joint Carrier Frequency Offset And Symbol Timing Error In Multicarrier Systems".

Barsoum et al. U.S. Patent 6,442,173 B1 discloses "Timing Recovery Scheme For A Discrete Multitone Transmission System".

Rosenlof U.S. Patent 6,546,056 B1 discloses "Timing Recovery In A Multitone Modem".

Strait U.S. Patent 6,847,693 B1 discloses "Method And Device Providing Data Derived Timing Recovery For Multicarrier Communications".

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khanh Cong Tran

04/29/2005

Examiner KHANH TRAN